Release Notes for Cisco Aironet 802.11a/b/g Client Adapters (CB21AG and PI21AG) Install Wizard 2.1

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Introduction

This document describes system requirements, important notes, new and changed information, installation and upgrade procedures, and caveats for CB21AG and PI21AG client adapter Install Wizard release 2.1 and the following software included in the Install Wizard file:

- CB21AG and PI21AG client adapter driver release 2.1
- Aironet Desktop Utility (ADU) release 2.1

System Requirements

You need the following in order to install Install Wizard 2.1 and use its software components:

- One of the following Cisco Aironet client adapters:
  - CB21AG PC-Cardbus card
  - PI21AG PCI card
- A computer running the Windows 2000 or XP operating system

  Note Cisco recommends a 300-MHz (or greater) processor.

- Service Pack 2 for Windows XP
- 20 MB of free hard disk space (minimum)
- 128 MB of RAM or greater (recommended)
- If your wireless network uses EAP-TLS or PEAP authentication, Certificate Authority (CA) and user certificates for EAP-TLS authentication or CA certificate for PEAP authentication
- If your wireless network uses PEAP (EAP-GTC) authentication with a One-Time Password (OTP) user database:
  - A hardware token device from OTP vendors or the Secure Computing SofToken program (release 2.1 or later)
  - Your hardware or software token password
- The Microsoft 802.1X supplicant, if your client adapter is installed on a Windows 2000 device and uses PEAP (EAP-MSCHAPV2) with machine authentication
- All necessary infrastructure devices (such as access points, servers, gateways, user databases, etc.) must be properly configured for any authentication type you plan to enable on the client.
- The following information from your system administrator:
  - The logical name for your workstation (also referred to as *client name*)
  - The protocols necessary to bind to the client adapter, such as TCP/IP
  - The case-sensitive service set identifier (SSID) for your RF network
  - If your network setup does not include a DHCP server, the IP address, subnet mask, and default gateway address of your computer

- The wired equivalent privacy (WEP) keys of the access points with which your client adapter will communicate, if your wireless network uses static WEP for security
- The username and password for your network account
- Protected access credentials (PAC) file if your wireless network uses EAP-FAST authentication with manual PAC provisioning

Important Notes

Customized Installation Images (Notice to IT Professionals)

Caution Use caution when bundling the client adapter software into a customized installation image. If the registry settings are modified, the software may not install and uninstall properly.

Client Adapter Software Compatibility

Caution Cisco Aironet CB21AG and PI21AG client adapter software is incompatible with other Cisco Aironet client adapter software. The Aironet Desktop Utility (ADU) must be used with CB21AG and PI21AG cards, and the Aironet Client Utility (ACU) must be used with all other Cisco Aironet client adapters.

Enabling CCKM Fast Secure Roaming

If you want to enable CCKM on the client adapter, you must choose the WPA/WPA2/CCKM security option, regardless of whether you want the adapter to use WPA or WPA2. The configuration of the access point to which your client adapter associates determines whether CCKM will be used with 802.1x, WPA, or WPA2.

Access Point Setting for LEAP or EAP-FAST Authentication

Access points must be set for both Network-EAP and open authentication in order to associate to CB21AG and PI21AG client adapters running LEAP with WPA/WPA2/CCKM or EAP-FAST.

EAP-FAST Fails When Access Point Configured as Local RADIUS Server

The client adapter fails to authenticate using EAP-FAST when the access point is running Cisco IOS Release 12.3(2)JA2 and is configured as a local RADIUS server. The following message appears: “Unable to EAP-FAST authenticate the wireless user in the specified amount of time. Network infrastructure might be down.”

GINA Error on Bootup

If your computer ever experiences a GINA error on bootup, boot to the safe mode command prompt. Then copy the msgina.dll file in the WinNT\System32 directory (Windows 2000) or Windows\System32 directory (Windows XP) over to a file named cscogina.dll. The **copy** command enables you to copy a source file (msgina.dll) to a destination file (cscogina.dll) within the same directory.

Reboot Required When Uninstalling ACU and ADU

Caution When you uninstall ACU and ADU, make sure you reboot your computer when prompted. Otherwise, the system may be rendered unable to boot, displaying the message "The Logon User Interface DLL cswGina.dll failed to load. Contact your system administrator to replace the DLL or restore the original DLL."

Uninstalling Software Components

All profiles and stored PAC files are deleted if you use the **Uninstall the previous installation** option on the Previous Installation Detected Install Wizard window to uninstall the client adapter software. Cisco recommends that you use the Profile Manager's export feature to save your profiles before uninstalling the software.

Profiles for PC-Cardbus Cards

The profiles for PC-Cardbus cards are tied to the slot in which the card is inserted. Therefore, you must always insert your PC-Cardbus card into the same slot, create profiles for both slots, or export the profiles for one slot and import them for the other slot.

Auto Profile Selection Enables Scan of All Wireless Modes

When you enable auto profile selection, the client adapter scans all wireless modes (5 GHz, 54 Mbps; 2.4 GHz, 11 Mbps; and 2.4 GHz, 54 Mbps) for an available network. The client ignores the selected profile's wireless mode setting, which was configured on the ADU Profile Management (Advanced) window. Using this method, the client does not need to drop the current connection nor change the current profile while looking for networks in other profiles.

ASTU Exit Option

The Exit option on the Aironet System Tray Utility (ASTU) pop-up menu closes both ASTU and ADU.

Windows Wireless Network Connection Icon Shows Unavailable Connection (Windows XP Only)

If your computer is running Windows XP and you configured your client adapter using ADU, the Windows Wireless Network Connection icon in the Windows system tray may be marked with a red *X* and show an unavailable connection even though a wireless connection exists. This condition is caused by a conflict between ADU and Windows XP's wireless network settings. Simply ignore the Windows icon and use the ASTU icon to check the status of your client adapter's wireless connection.

Supporting Documentation

The *Cisco Aironet 802.11a/b/g Wireless LAN Client Adapters (CB21AG and PI21AG) Installation and Configuration Guide* (part number OL-4211-03) pertains specifically to CB21AG and PI21AG client adapters. If you are using a Cisco Aironet 340, 350, or CB20A client adapter, refer to the Installation and Configuration Guide for that client adapter and your computer's operating system.

New and Changed Information

Signal Strength and Quality Values Can Be Shown in %

The Signal Strength Display Units parameter, which is available in ADU 1.0, 1.1, and 1.2, has been added to the Display Settings window in ADU 2.1. In addition, a Display in Percent check box has been added to the Associated AP Status tab of site survey utility 1.1. Both parameters enable you to display signal strength values either as a percentage (%) or in decibels with respect to milliwatts (dBm)/decibels (dB) and signal quality values as a percentage.

Installing or Upgrading Client Adapter Software

This section describes how to initially install or upgrade to CB21AG and PI21AG Install Wizard 2.1 on a computer running Windows 2000 or XP. If the client adapter software is not installed on your computer, follow the instructions in the "Installing the Client Adapter Software" section below. If you are upgrading your client adapter software to release 2.1, follow the instructions in the "Upgrading the Client Adapter Software" section on page 16.

Installing the Client Adapter Software

Follow these steps to install CB21AG and PI21AG Install Wizard 2.1 on your computer.

Caution Do not eject your client adapter at any time during the installation process, including during the reboot.

Note Only one wireless client adapter can be installed and used at a time. The software does not support the use of multiple cards.

Step 1 Make sure the client adapter is inserted in your computer.

Note If your client adapter is not inserted, the software cannot be installed.

Step 2 Use your computer's web browser to access the following URL:

http://www.cisco.com/public/sw-center/sw-wireless.shtml

Step 3 Click **Option #2: Aironet Wireless Software Display Tables**.

Note If you prefer to use an automated tool, you can download software from the Software Selector tool instead of the display tables. To do so, click **Option #1: Aironet Wireless Software Selector**, follow the instructions on the window, and go to Step 7.

Step 4 Click **Cisco Aironet Wireless LAN Client Adapters**.

Step 5 Under Aironet Client Adapter Installation Wizard (For Windows), click **802.11a/b/g (CB21AG, PI21AG)**.

Step 6 Click the **Win-Client-802.11a-b-g-Ins-Wizard-v21.exe** file.

Step 7 Complete the encryption authorization form; then read and accept the terms and conditions of the Software License Agreement.

Step 8 Click the file again to download it.

Step 9 Save the file to your computer's hard drive.

Step 10 Use Windows Explorer to find the file.

Step 11 Double-click the file. The "Starting InstallShield Wizard" message appears followed by the Preparing Setup window (see Figure 1) and the Cisco Aironet Installation Program window (see Figure 2).

Figure 1 Preparing Setup Window

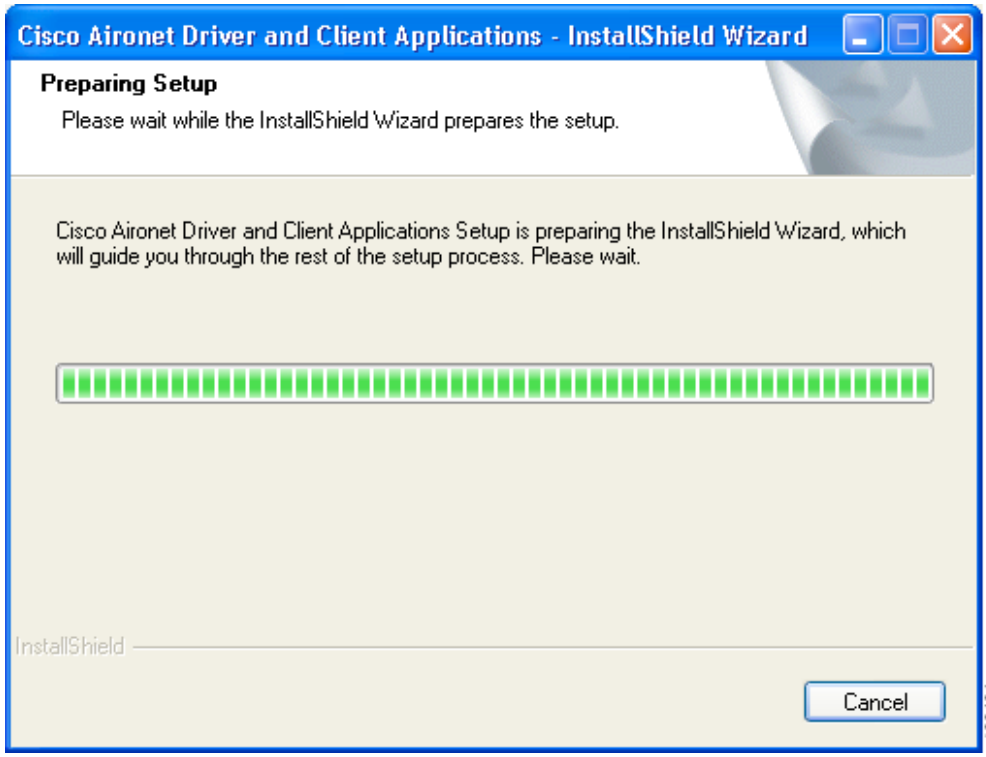
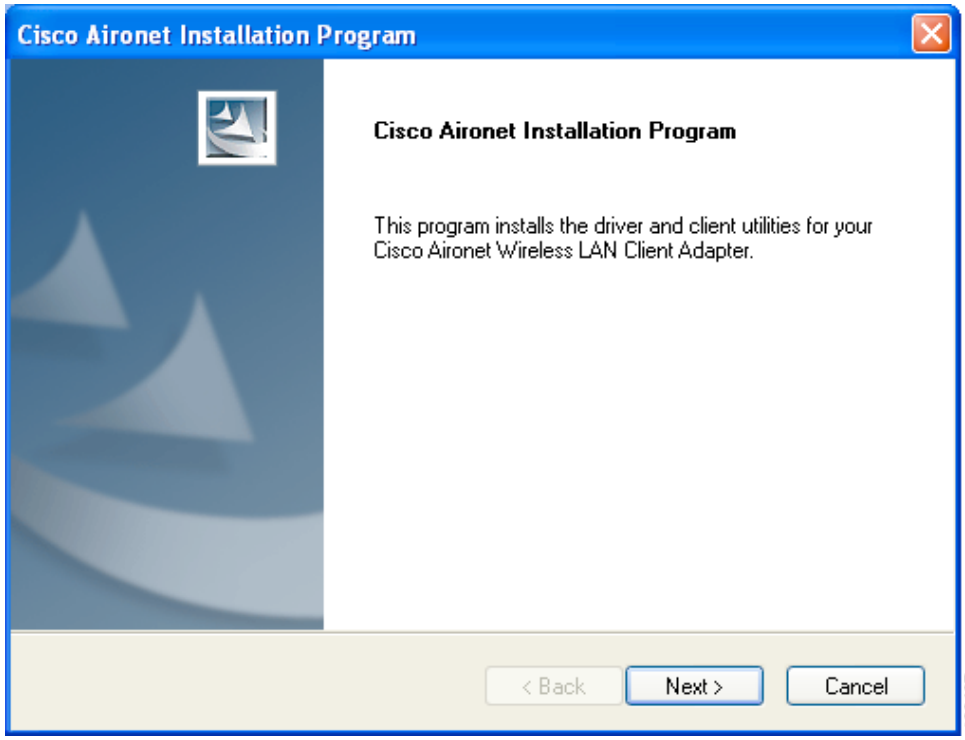
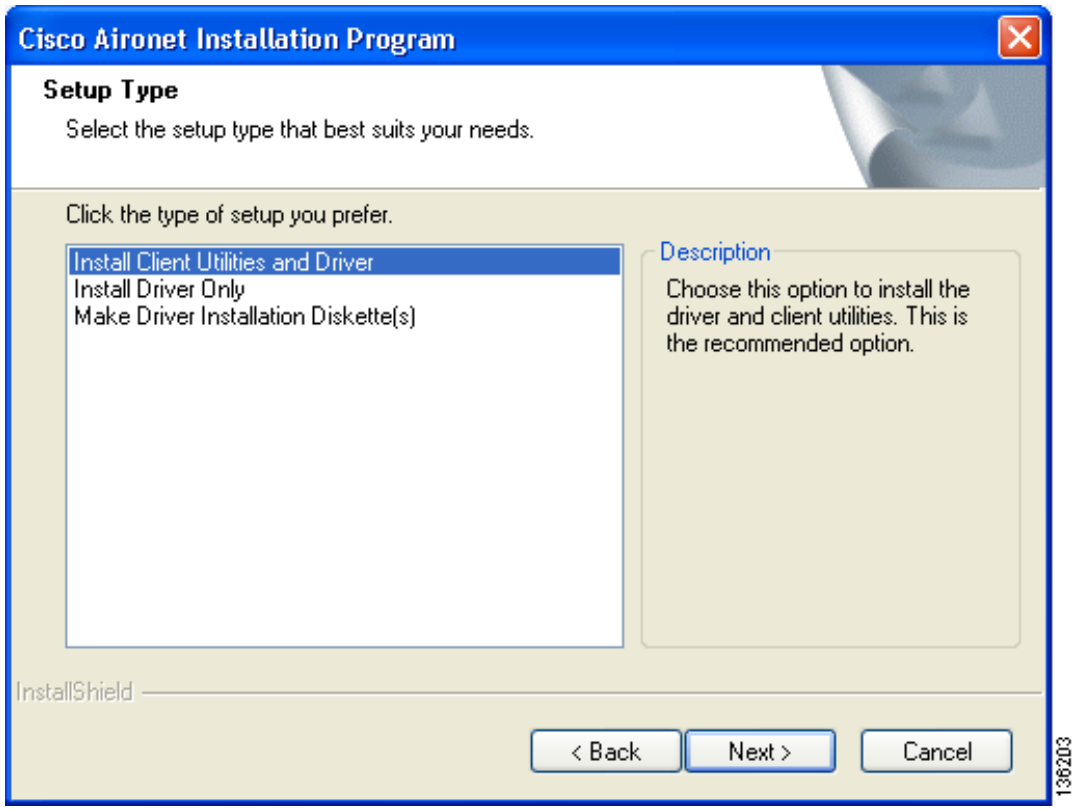

Cisco Aironet Driver and Client Applications - InstallShield Wizard
Preparing Setup
Please wait while the InstallShield Wizard prepares the setup.
Cisco Aironet Driver and Client Applications Setup is preparing the InstallShield Wizard, which will guide you through the rest of the setup process. Please wait.
InstallShield
Cancel
103434

Figure 2 Cisco Aironet Installation Program Window


Cisco Aironet Installation Program
Cisco Aironet Installation Program
This program installs the driver and client utilities for your Cisco Aironet Wireless LAN Client Adapter.
< Back
Next >
Cancel
103407

Step 12 Click **Next**. The Setup Type window appears (see Figure 3).

Figure 3 Setup Type Window


Cisco Aironet Installation Program
Setup Type
Select the setup type that best suits your needs.
Click the type of setup you prefer.
Install Client Utilities and Driver
Install Driver Only
Make Driver Installation Diskette(s)
Description
Choose this option to install the driver and client utilities. This is the recommended option.
InstallShield
< Back
Next >
Cancel
136203

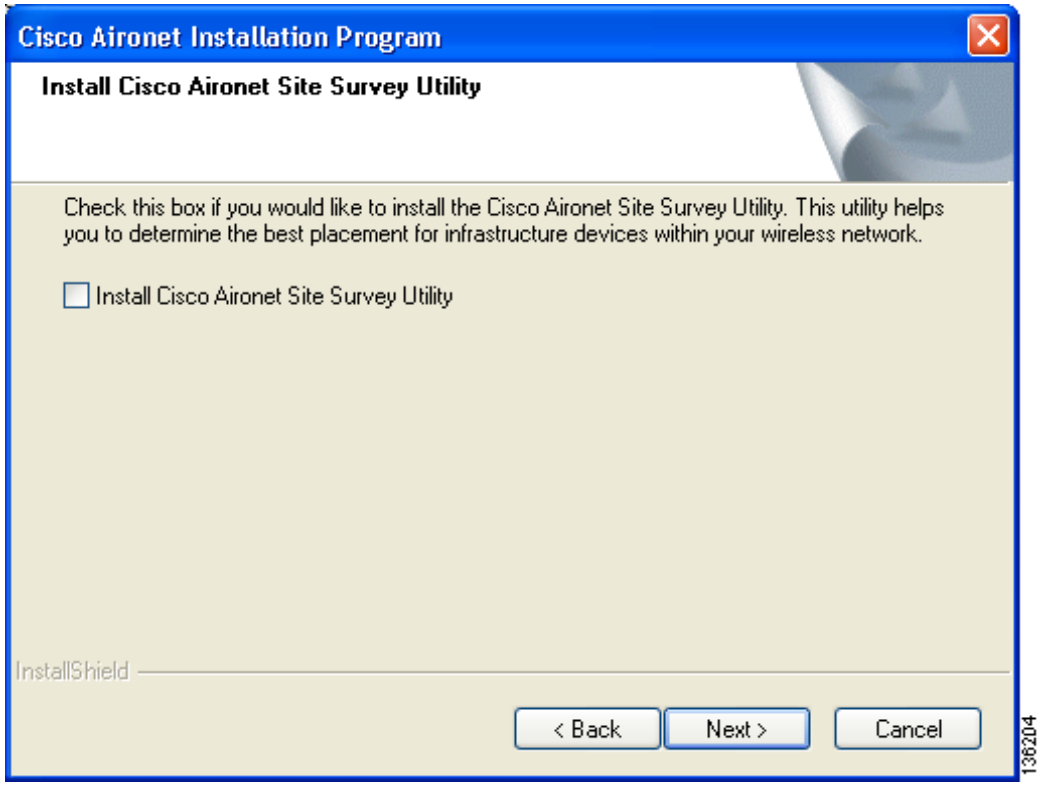
Step 13 Choose one of the following options:

Note To ensure compatibility among software components, Cisco recommends that you install the client utilities and driver.

- **Install Client Utilities and Driver**—Installs the client adapter driver and client utilities.
- **Install Driver Only**—Installs only the client adapter driver. If you choose this option, click **Next** and go to Step 26.
- **Make Driver Installation Diskette(s)**—Enables you to create driver installation diskettes that can be used to install drivers using the Windows Device Manager.

Step 14 Click **Next**. The Install Cisco Aironet Site Survey Utility window appears (see Figure 4).

Figure 4 Install Cisco Aironet Site Survey Utility Window


Cisco Aironet Installation Program
Install Cisco Aironet Site Survey Utility
Check this box if you would like to install the Cisco Aironet Site Survey Utility. This utility helps you to determine the best placement for infrastructure devices within your wireless network.
Install Cisco Aironet Site Survey Utility
InstallShield
< Back
Next >
Cancel
136204

Step 15 Check the **Install Cisco Aironet Site Survey Utility** check box if you want to install a utility that helps you to determine the best placement of infrastructure devices within your wireless network. Click **Next**.

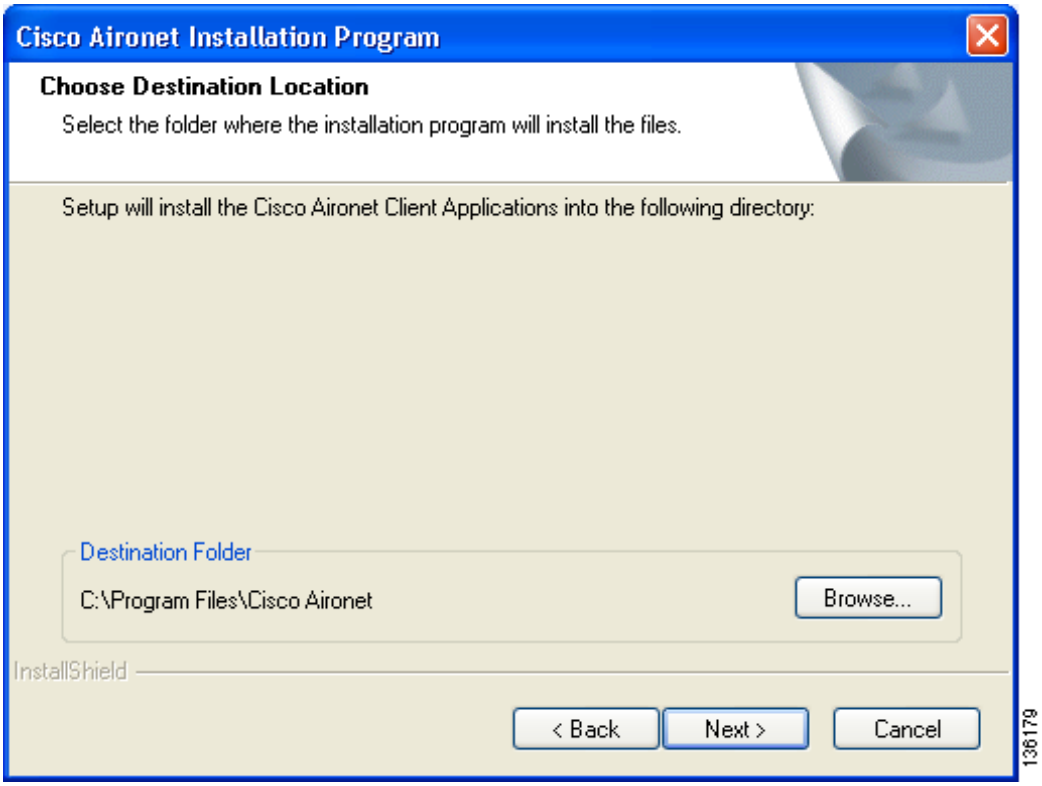
Note The site survey utility is a stand-alone application, separate from ADU, that runs from an executable file. If you check the Install Cisco Aironet Site Survey Utility check box, the Install Wizard installs the site survey executable file in the C:\Program Files\Cisco Aironet directory (unless you specify a different directory in Step 17).

Step 16 If a message appears indicating that you are required to restart your computer at the end of the installation process, click **Yes**.

Note If you click **No**, you are asked to confirm your decision. If you proceed, the installation process terminates.

The Choose Destination Location window appears (see Figure 5).

Figure 5 Choose Destination Location Window



Step 17 Perform one of the following:

- If you chose the first option in Step 13, click **Next** to install the client utility files in the C:\Program Files\Cisco Aironet directory.

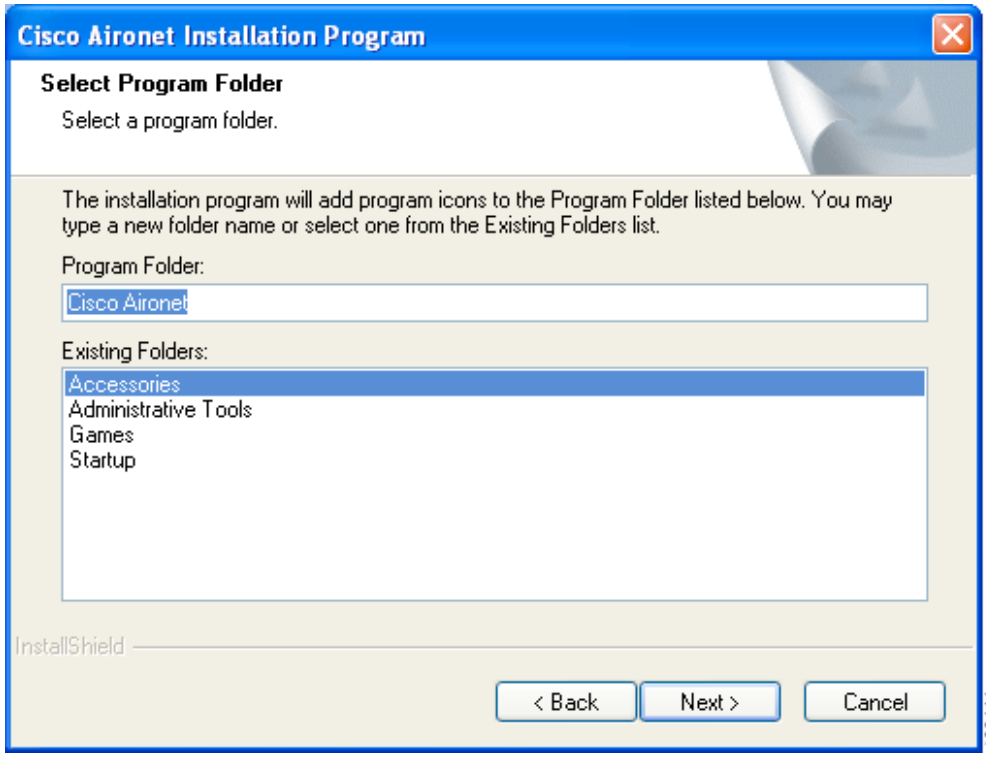
  Note If you want to install the client utilities in a different directory, click **Browse**, choose a different directory, click **OK**, and click **Next**.

- If you chose the Make Driver Installation Diskette(s) option in Step 13, insert a floppy disk into your computer and click **Next** to copy the driver to the diskette. Go to Step 26.

  Note If you want to copy the driver to a different drive or directory, click **Browse**, choose a new location, click **OK**, and click **Next**.

Step 18 The Select Program Folder window appears (see Figure 6).

Figure 6 Select Program Folder Window

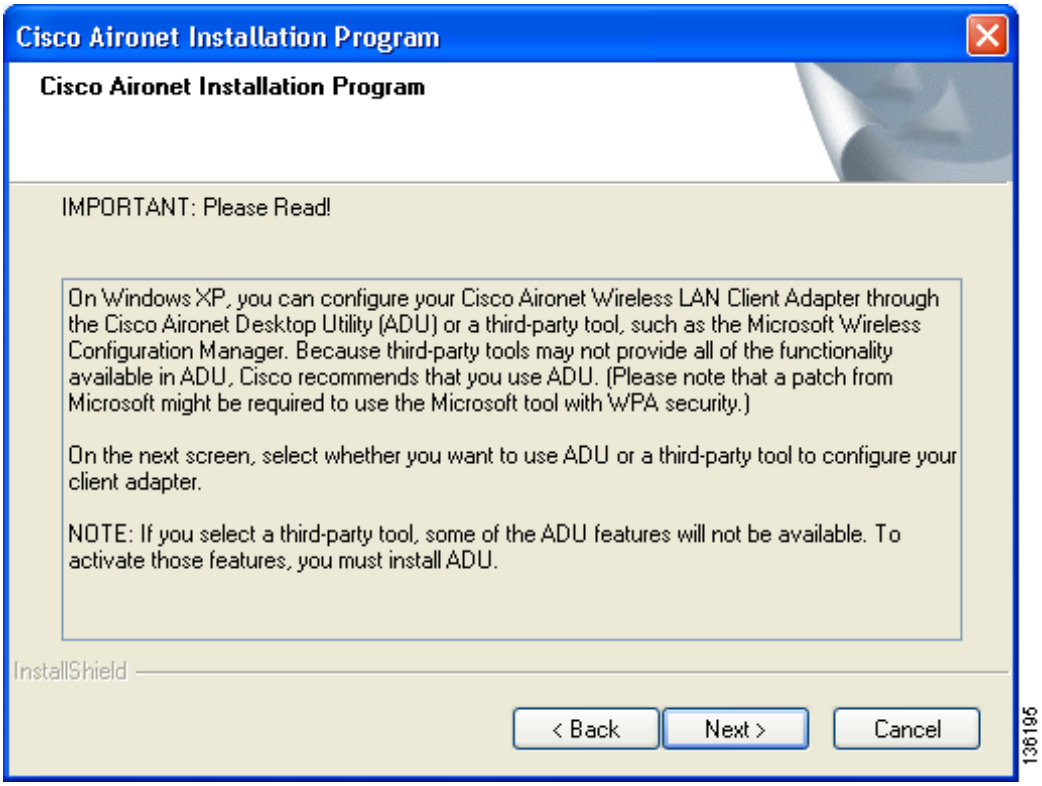


Step 19 Click **Next** to add program icons to the Cisco Aironet program folder.

Note If you want to specify a different program folder, choose a folder from the Existing Folders list or type a new folder name in the Program Folder field and click **Next**.

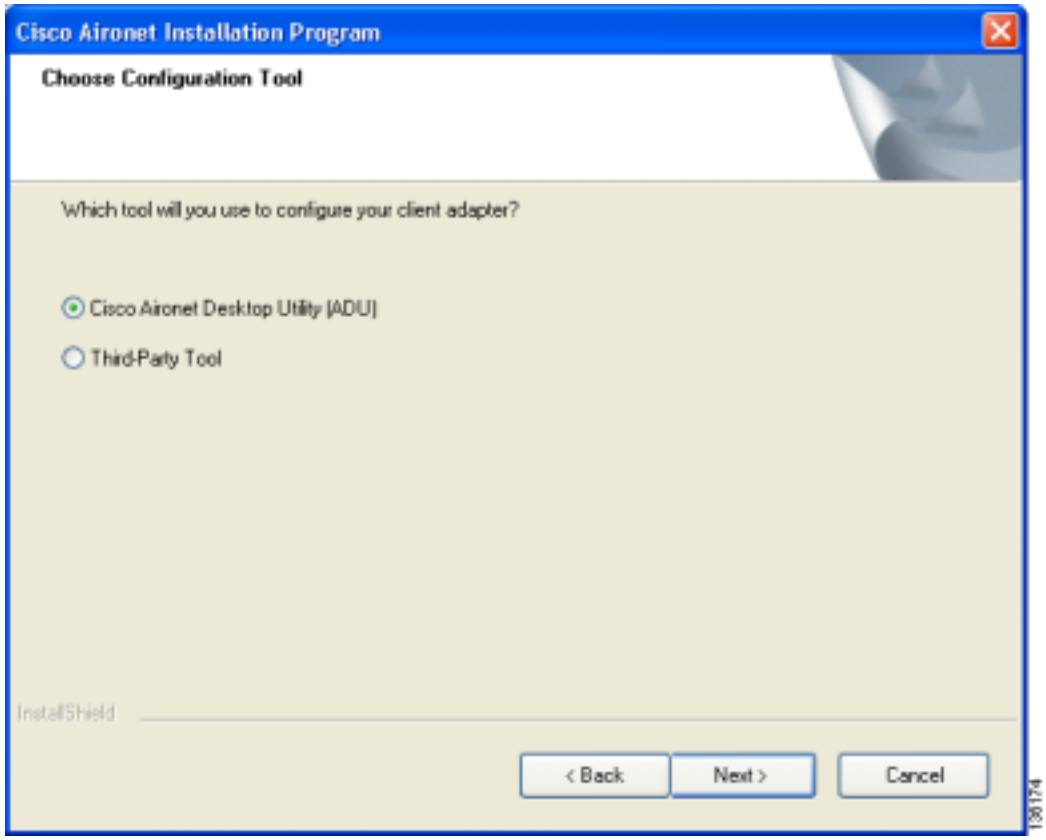
Step 20 If your computer is running Windows 2000, go to Step 26. If your computer is running Windows XP, the IMPORTANT: Please Read! window appears (see Figure 7).

Figure 7 IMPORTANT: Please Read! Window


Cisco Aironet Installation Program
Cisco Aironet Installation Program
IMPORTANT: Please Read!
On Windows XP, you can configure your Cisco Aironet Wireless LAN Client Adapter through the Cisco Aironet Desktop Utility (ADU) or a third-party tool, such as the Microsoft Wireless Configuration Manager. Because third-party tools may not provide all of the functionality available in ADU, Cisco recommends that you use ADU. (Please note that a patch from Microsoft might be required to use the Microsoft tool with WPA security.)
On the next screen, select whether you want to use ADU or a third-party tool to configure your client adapter.
NOTE: If you select a third-party tool, some of the ADU features will not be available. To activate those features, you must install ADU.
InstallShield
< Back
Next >
Cancel
136195

Step 21 Read the information displayed and click **Next**. The Choose Configuration Tool window appears (see Figure 8).

Figure 8 Choose Configuration Tool Window



Step 22 Choose one of the following options based on the tool you want to use to configure your client adapter:

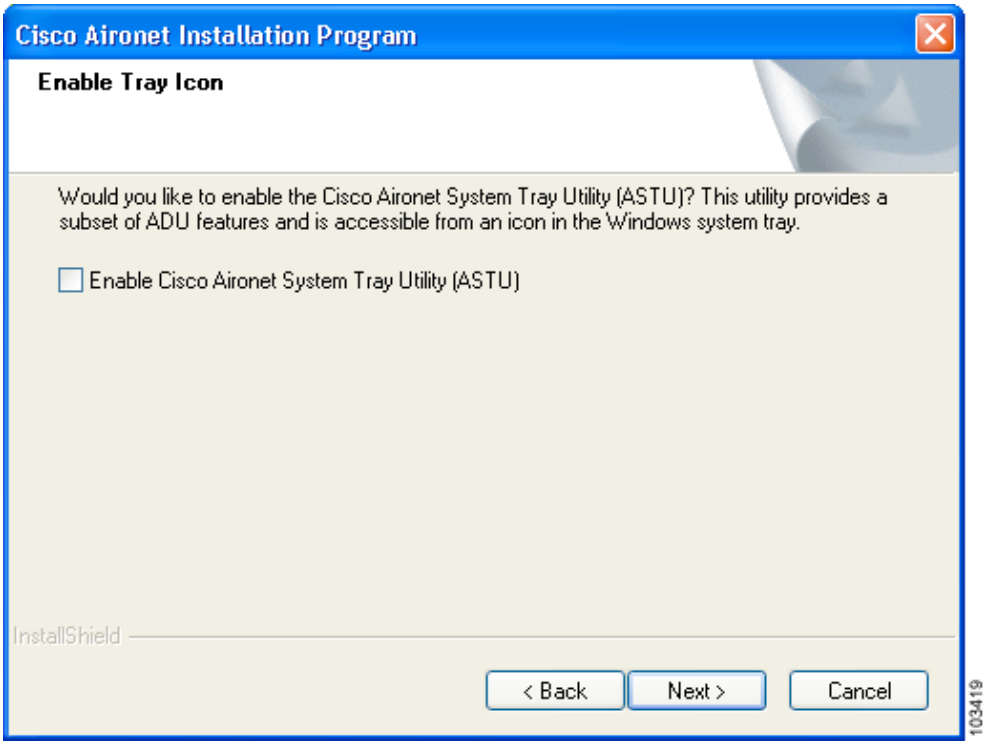
- **Cisco Aironet Desktop Utility (ADU)**—Enables you to configure your client adapter using ADU.
- **Third-Party Tool**—Enables you to configure your client adapter using a third-party tool such as the Microsoft Wireless Configuration Manager in Windows XP.

Note If you choose Cisco Aironet Desktop Utility (ADU) above, the Microsoft Wireless Configuration Manager is disabled. If you ever manually enable it, you are prompted to disable it whenever ADU is activated.

Step 23 Click **Next**.

Step 24 If you chose Cisco Aironet Desktop Utility (ADU) in Step 22, go to Step 26. If you chose Third-Party Tool, the Enable Tray Icon window appears (see Figure 9).

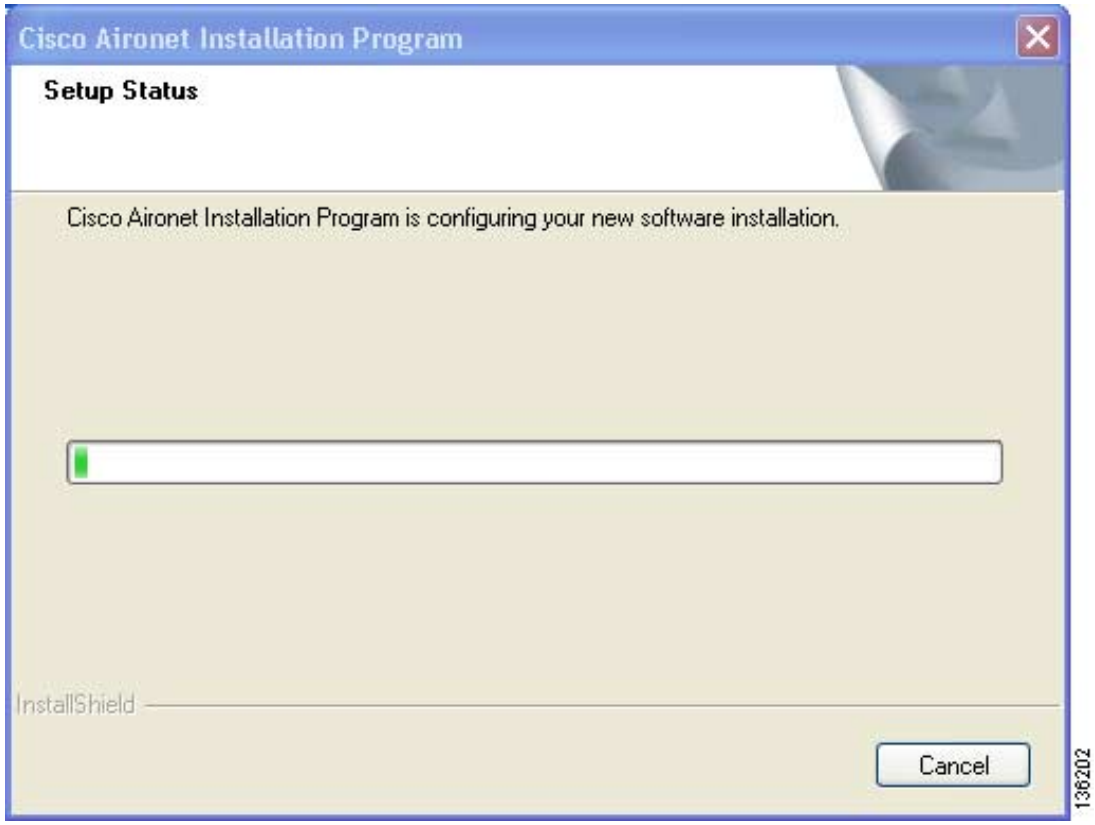
Figure 9 Enable Tray Icon Window


Cisco Aironet Installation Program
Enable Tray Icon
Would you like to enable the Cisco Aironet System Tray Utility (ASTU)? This utility provides a subset of ADU features and is accessible from an icon in the Windows system tray.
Enable Cisco Aironet System Tray Utility (ASTU)
InstallShield
< Back
Next >
Cancel
103419

Step 25 Check the **Enable Cisco Aironet System Tray Utility (ASTU)** check box if you want to be able to use ASTU even though you have chosen to configure your client adapter through a third-party tool instead of ADU and click **Next**.

Step 26 When prompted to insert your client adapter, click **OK**. The Setup Status window appears (see Figure 10).

Figure 10 Setup Status Window



The installation process begins, and you are notified as each software component is installed.

Step 27 When a message appears indicating that your computer needs to be rebooted, click **OK** and allow your computer to restart.

Step 28 If the Windows Found New Hardware Wizard appears after your computer reboots, click **Next**, allow the wizard to install the software for the client adapter, and click **Finish**.

Step 29 If your network setup does not include a DHCP server and you plan to use TCP/IP, follow these steps for your operating system.

- **Windows 2000**
  - **a.** Double-click **My Computer**, **Control Panel**, and **Network and Dial-up Connections**.
  - **b.** Right-click **Local Area Connection *x*** (where *x* represents the number of the connection).
  - **c.** Click **Properties**.
  - **d.** In the Components Checked Are Used by This Connection field, click **Internet Protocol (TCP/IP)** and **Properties**.
  - **e.** Choose **Use the following IP address** and enter the IP address, subnet mask, and default gateway address of your computer (which can be obtained from your system administrator).
  - **f.** Click **OK** to close each open window.

- **Windows XP**
  a. Double-click **My Computer**, **Control Panel**, and **Network Connections**.
  b. Right-click **Wireless Network Connection *x*** (where *x* represents the number of the connection).
  c. Click **Properties**.
  d. In the This Connection Uses the Following Items field, click **Internet Protocol (TCP/IP)** and **Properties**.
  e. Choose **Use the following IP address** and enter the IP address, subnet mask, and default gateway address of your computer (which can be obtained from your system administrator).
  f. Click **OK** to close each open window.

Step 30 If you are prompted to restart your computer, click **Yes**. The installation is complete.

Upgrading the Client Adapter Software

Follow these steps to upgrade your CB21AG or PI21AG client adapter software to release 2.1 using the settings that were selected during the last installation.

Note If you want to upgrade your client adapter software using new installation settings, you must uninstall the previous installation [see the instructions in Chapter 9 of the *Cisco Aironet 802.11a/b/g Wireless LAN Client Adapters (CB21AG and PI21AG) Installation and Configuration Guide*] and then follow the instructions in the "Installing the Client Adapter Software" section on page 5 to install the new software.

Step 1 Make sure the client adapter is inserted in your computer.

Note If your client adapter is not inserted, the software cannot be upgraded.

Step 2 Use your computer's web browser to access the following URL:

http://www.cisco.com/public/sw-center/sw-wireless.shtml

Step 3 Click **Option #2: Aironet Wireless Software Display Tables**.

Note If you prefer to use an automated tool, you can download software from the Software Selector tool instead of the display tables. To do so, click **Option #1: Aironet Wireless Software Selector**, follow the instructions on the window, and go to Step 7.

Step 4 Click **Cisco Aironet Wireless LAN Client Adapters**.

Step 5 Under Aironet Client Adapter Installation Wizard (For Windows), click **802.11a/b/g (CB21AG, PI21AG)**.

Step 6 Click the **Win-Client-802.11a-b-g-Ins-Wizard-v21.exe** file.

Step 7 Complete the encryption authorization form; then read and accept the terms and conditions of the Software License Agreement.

Step 8 Click the file again to download it.

Step 9 Save the file to your computer's hard drive.

Step 10 Use Windows Explorer to find the file.

Step 11 Double-click the file. The "Starting InstallShield Wizard" message appears followed by the Preparing Setup window (see Figure 11) and the Previous Installation Detected window (see Figure 12).

Figure 11 Preparing Setup Window

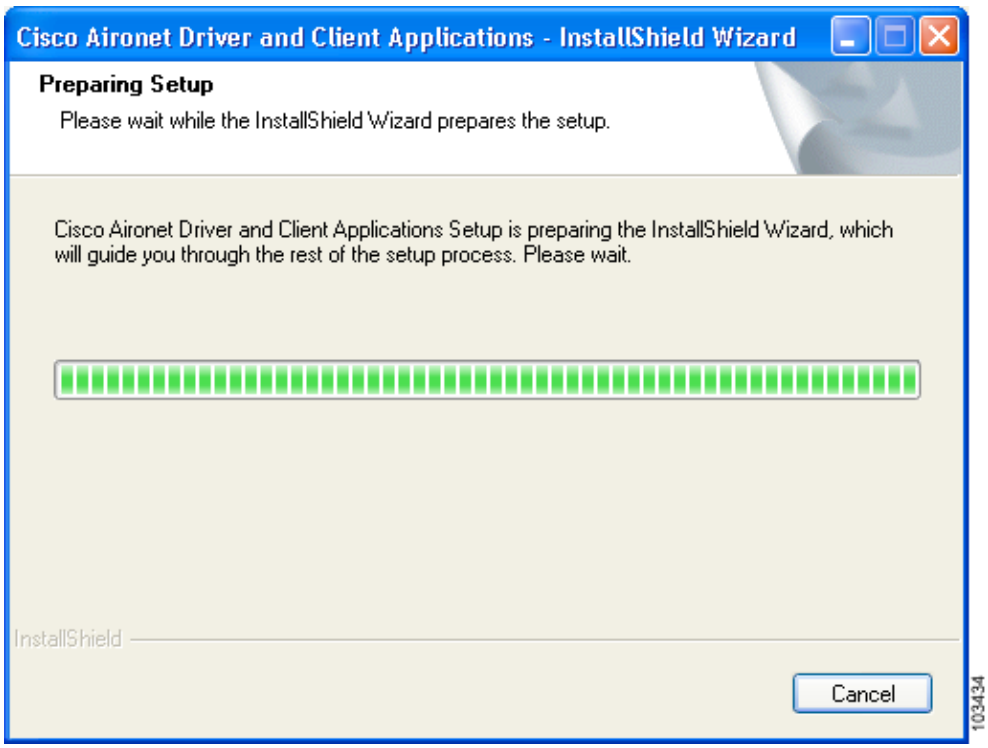
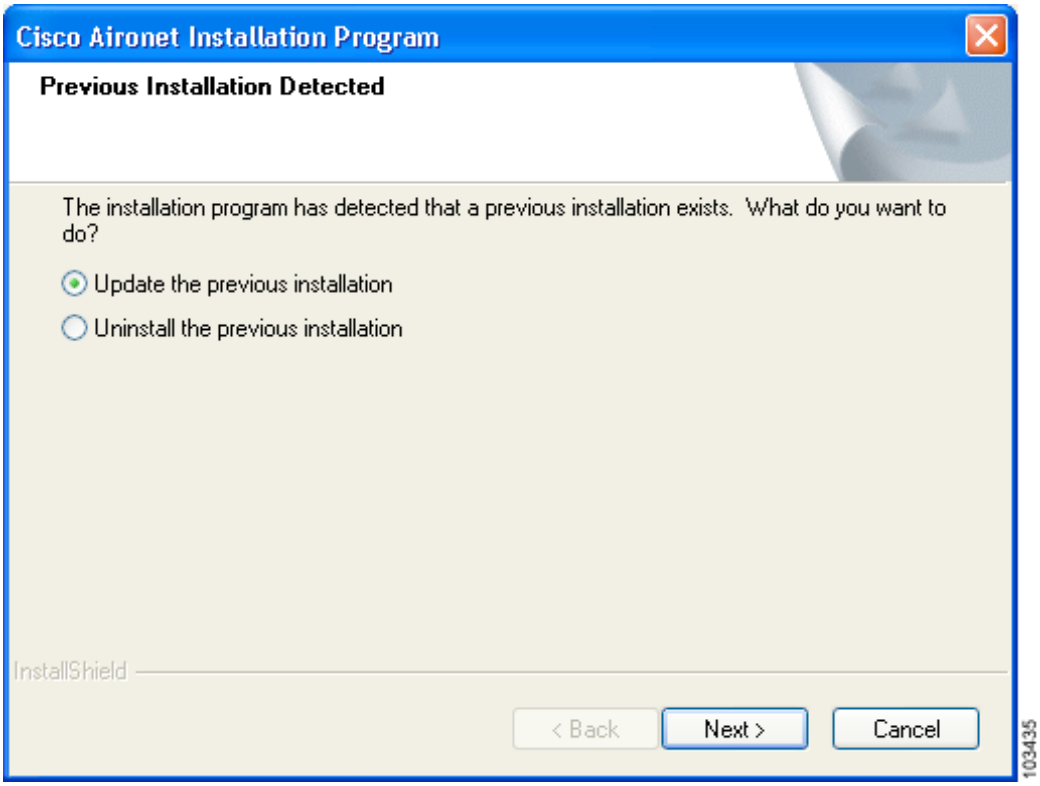

Cisco Aironet Driver and Client Applications - InstallShield Wizard
Preparing Setup
Please wait while the InstallShield Wizard prepares the setup.
Cisco Aironet Driver and Client Applications Setup is preparing the InstallShield Wizard, which will guide you through the rest of the setup process. Please wait.
InstallShield
Cancel
103434

Figure 12 Previous Installation Detected Window


Cisco Aironet Installation Program
Previous Installation Detected
The installation program has detected that a previous installation exists. What do you want to do?
Update the previous installation
Uninstall the previous installation
InstallShield
< Back
Next >
Cancel
103435

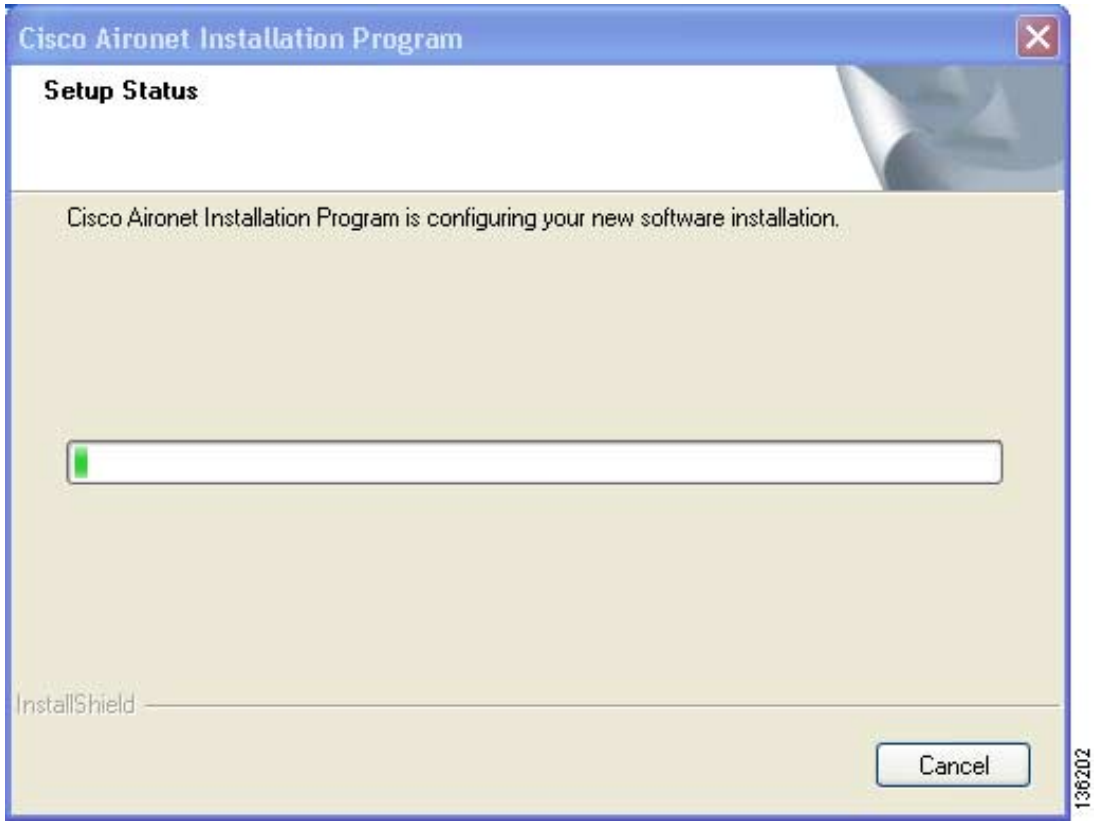
Step 12 Choose **Update the previous installation** and click **Next**.

Step 13 When a message appears indicating that you are required to restart your computer at the end of the installation process, click **Yes**.

Note If you click **No**, you are asked to confirm your decision. If you proceed, the installation process terminates.

The Setup Status window appears (see Figure 13).

Figure 13 Setup Status Window



The upgrade process begins, and you are notified as each software component is installed.

Step 14 When a message appears indicating that your computer needs to be rebooted, click **OK** and allow your computer to restart. The client adapter's software has been upgraded.

Finding Version Numbers

Follow the instructions in this section to find the version numbers of your client adapter's software components.

Finding the Driver Version

To find the driver version that is currently installed for your client adapter, open ADU, click the **Diagnostics** tab, and click **Adapter Information**. The Driver Version field on the Adapter Information window shows the current driver version.

Finding the ADU Version

To find the version of ADU that is currently installed for your client adapter, open ADU and choose the **About Aironet Desktop Utility** option from the Help drop-down menu. The About window shows the current ADU version.

Caveats

This section describes the open caveats for the software components in this release.

Open Install Wizard Caveats

The following caveat is not resolved in CB21AG and PI21AG client adapter Install Wizard 2.1.

- CSCeh25691—Error may occur during upgrade of client adapter software

  The following message may appear when you upgrade from an earlier version of the Install Wizard: "The installer has detected that this is a major upgrade. To assure that there are no incompatibilities, the previous install needs to be deleted. Do you wish to continue?" If you click Yes, you are asked if you want to completely remove the selected application and all of its features. If you click Cancel and then choose to update the previous installation, the following error messages appear: "Feature transfer error" and "Unknown error." To work around this problem, uninstall the client adapter software and then reinstall it.

Open Driver Caveats

The following caveats are not resolved in CB21AG and PI21AG client adapter driver 2.1.

- CSCed40520—Up to 5-minute delay for initial boot

  Some computers may experience up to a 5-minute delay during the first boot after installation. Subsequent boots are normal.

- CSCee89506—Driver fails to install when using install disk on Windows 2000

  When you create a driver installation disk (on a floppy or by storing the files in a folder) using the Install Wizard on a computer running Windows 2000, the driver may fail to install. Specifically, when you install the driver via Windows Device Manager > Driver > Properties > Driver Update Driver, Windows indicates that it has finished installing the driver software. However, the Windows Network and Dial-up Connections window shows the following message: "An unexpected error occurred." Also, after you reboot the computer, the Windows Device Manager shows an incomplete installation of the driver software.

- CSCef74909—IPX auto frame detection may not work correctly

  When using Novell IPX client software, the client adapter may not allow proper detection of the IPX frame type. As a result, the Novell IPX stack is unable to log into the Novell server. The IPX stack RIP requester stops trying after 2.5 seconds, which is the default value. To work around this problem, you can change the timeout value in the registry at the following location: \HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\NwlnkIpx\Parameters

  The parameter is a REG_DWORD named RipCount. Increase the value to 20 seconds by entering hex 28 (40 decimal). The units are in half seconds.

- CSCeh03426—Client experiences throughput values below 1 Mbps

  When 6 or 9 Mbps is enabled on the access point, the client adapter experiences throughput values below 1 Mbps. To work around this problem, set the access point to its default data rate.

- CSCeh45986—CB21AG in ACER Travelmate 529TX fails DHCP and LEAP

  When the CB21AG client adapter is installed in an ACER Travelmate 529TX running Windows 2000 with Service Pack 4 and configured for static WEP with open authentication, it fails to obtain an IP address through DHCP. In addition, the client adapter also fails to LEAP authenticate.

Open ADU Caveats

The following caveats are not resolved in ADU 2.1.

- CSCeh19611—Incorrect EAP-FAST authentication failure error message

  ADU may show the incorrect error message when EAP-FAST authentication fails. This occurs when the access point returns an incorrect error code rather than timing out.

- CSCeh59373—ADU unmanageable after first install

  If ADU is unusable after you install the client adapter software, uninstall the client adapter software and then reinstall it.

- CSCeh66276—ADU does not prompt for PIN during PEAP (EAP-GTC) reauthentication

  During PEAP (EAP-GTC) reauthentication, ADU does not prompt you to enter a PIN. When the client roams out of the coverage area and then returns or its radio is disabled and then reenabled, you are not prompted to re-enter your credentials. The client reconnects to the network and starts to transfer data.

- CSCeh66882—User is prompted for EAP-FAST PAC when it should be present

  The following message may appear even if you have already specified a PAC to use with EAP-FAST: "The current EAP-FAST profile does not have a PAC or the configured PAC does not match the authentication server. Do you want to use another PAC found on your local system that matches the authentication server without reconfiguring the current EAP-FAST profile?"

  ADU matches the username and server name that it is trying to use with those in the PAC. If they do not match or the configured PAC does not exist, ADU searches the private and global stores. If a matching PAC is found, the user is prompted with the above message before the PAC is used. Click **Yes** to attempt to authenticate using another PAC on your system without having to reconfigure your profile.

- CSCeh69073 and CSCeh72204—Auto-provisioned PAC does not support unicode usernames

  An auto-provisioned PAC is not stored in a user's private store if he or she logs into Windows with a username containing two-byte characters. Automatic PAC provisioning succeeds, but the PAC does not appear in the Select EAP-FAST PAC window of the private store and therefore cannot be deleted. To work around this problem, go to the global store on your computer (C:\Document and Settings\All Users\Application Data\Cisco\cscostore). You can see the PAC here and delete it if desired.

- CSCeh74184—Client fails to associate when configured for WPA/WPA2 passphrase and multiple SSIDs

  The client adapter fails to connect to the network when using a profile that is configured for WPA/WPA2 passphrase and more than one SSID. To work around this problem, create separate profiles for the desired SSIDs.

Getting Bug Information on Cisco.com

If you are a Cisco registered user, you can use the Cisco TAC Software Bug Toolkit, which consists of three tools (Bug Navigator, Bug Watcher, and Search by Bug ID Number) that help you to identify existing bugs (or caveats) in Cisco software products.

Access the TAC Software Bug Toolkit at the following URL:

http://www.cisco.com/pcgi-bin/Support/Bugtool/launch_bugtool.pl

Troubleshooting

For the most up-to-date, detailed troubleshooting information, refer to the Cisco TAC website at

http://www.cisco.com/en/US/support/index.html

Click **Product Support** > **Wireless**. Then choose your product and **Troubleshooting** to find information on the problem you are experiencing.

Related Documentation

For more information about Cisco Aironet CB21AG and PI21AG client adapters, refer to the following document:

- *Cisco Aironet 802.11a/b/g Wireless LAN Client Adapters (CB21AG and PI21AG) Installation and Configuration Guide*, OL-4211-03

  http://www.cisco.com/en/US/products/hw/wireless/ps4555/products_installation_and_configuration_guides_list.html

Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. Cisco also provides several ways to obtain technical assistance and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

Cisco.com

You can access the most current Cisco documentation at this URL:

http://www.cisco.com/univercd/home/home.htm

You can access the Cisco website at this URL:

http://www.cisco.com

You can access international Cisco websites at this URL:

http://www.cisco.com/public/countries_languages.shtml

Documentation DVD

Cisco documentation and additional literature are available in a Documentation DVD package, which may have shipped with your product. The Documentation DVD is updated regularly and may be more current than printed documentation. The Documentation DVD package is available as a single unit.

Registered Cisco.com users (Cisco direct customers) can order a Cisco Documentation DVD (product number DOC-DOCDVD=) from the Ordering tool or Cisco Marketplace.

Cisco Ordering tool:

http://www.cisco.com/en/US/partner/ordering/

Cisco Marketplace:

http://www.cisco.com/go/marketplace/

Ordering Documentation

You can find instructions for ordering documentation at this URL:

http://www.cisco.com/univercd/cc/td/doc/es_inpck/pdi.htm

You can order Cisco documentation in these ways:

- Registered Cisco.com users (Cisco direct customers) can order Cisco product documentation from the Ordering tool:

  http://www.cisco.com/en/US/partner/ordering/

- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco Systems Corporate Headquarters (California, USA) at 408 526-7208 or, elsewhere in North America, by calling 1 800 553-NETS (6387).

Documentation Feedback

You can send comments about technical documentation to bug-doc@cisco.com.

You can submit comments by using the response card (if present) behind the front cover of your document or by writing to the following address:

Cisco Systems
Attn: Customer Document Ordering
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

Cisco Product Security Overview

Cisco provides a free online Security Vulnerability Policy portal at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

From this site, you can perform these tasks:

- Report security vulnerabilities in Cisco products.
- Obtain assistance with security incidents that involve Cisco products.
- Register to receive security information from Cisco.

A current list of security advisories and notices for Cisco products is available at this URL:

http://www.cisco.com/go/psirt

If you prefer to see advisories and notices as they are updated in real time, you can access a Product Security Incident Response Team Really Simple Syndication (PSIRT RSS) feed from this URL:

http://www.cisco.com/en/US/products/products_psirt_rss_feed.html

Reporting Security Problems in Cisco Products

Cisco is committed to delivering secure products. We test our products internally before we release them, and we strive to correct all vulnerabilities quickly. If you think that you might have identified a vulnerability in a Cisco product, contact PSIRT:

- Emergencies—security-alert@cisco.com
- Nonemergencies—psirt@cisco.com

Tip We encourage you to use Pretty Good Privacy (PGP) or a compatible product to encrypt any sensitive information that you send to Cisco. PSIRT can work from encrypted information that is compatible with PGP versions 2.*x* through 8.*x*.

Never use a revoked or an expired encryption key. The correct public key to use in your correspondence with PSIRT is the one that has the most recent creation date in this public key server list:

http://pgp.mit.edu:11371/pks/lookup?search=psirt%40cisco.com&op=index&exact=on

In an emergency, you can also reach PSIRT by telephone:

- 1 877 228-7302
- 1 408 525-6532

Obtaining Technical Assistance

For all customers, partners, resellers, and distributors who hold valid Cisco service contracts, Cisco Technical Support provides 24-hour-a-day, award-winning technical assistance. The Cisco Technical Support Website on Cisco.com features extensive online support resources. In addition, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not hold a valid Cisco service contract, contact your reseller.

Cisco Technical Support Website

The Cisco Technical Support Website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The website is available 24 hours a day, 365 days a year, at this URL:

http://www.cisco.com/techsupport

Access to all tools on the Cisco Technical Support Website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

http://tools.cisco.com/RPF/register/register.do

Note Use the Cisco Product Identification (CPI) tool to locate your product serial number before submitting a web or phone request for service. You can access the CPI tool from the Cisco Technical Support Website by clicking the **Tools & Resources** link under Documentation & Tools. Choose **Cisco Product Identification Tool** from the Alphabetical Index drop-down list, or click the **Cisco Product Identification Tool** link under Alerts & RMAs. The CPI tool offers three search options: by product ID or model name; by tree view; or for certain products, by copying and pasting **show** command output. Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before placing a service call.

Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool provides recommended solutions. If your issue is not resolved using the recommended resources, your service request is assigned to a Cisco TAC engineer. The TAC Service Request Tool is located at this URL:

http://www.cisco.com/techsupport/servicerequest

For S1 or S2 service requests or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco TAC engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)
EMEA: +32 2 704 55 55
USA: 1 800 553-2447

For a complete list of Cisco TAC contacts, go to this URL:

http://www.cisco.com/techsupport/contacts

Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

Severity 1 (S1)—Your network is “down,” or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Severity 2 (S2)—Operation of an existing network is severely degraded, or significant aspects of your business operation are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Severity 3 (S3)—Operational performance of your network is impaired, but most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Severity 4 (S4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- Cisco Marketplace provides a variety of Cisco books, reference guides, and logo merchandise. Visit Cisco Marketplace, the company store, at this URL:

  http://www.cisco.com/go/marketplace/

- *Cisco Press* publishes a wide range of general networking, training and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press at this URL:

  http://www.ciscopress.com

- *Packet* magazine is the Cisco Systems technical user magazine for maximizing Internet and networking investments. Each quarter, Packet delivers coverage of the latest industry trends, technology breakthroughs, and Cisco products and solutions, as well as network deployment and troubleshooting tips, configuration examples, customer case studies, certification and training information, and links to scores of in-depth online resources. You can access Packet magazine at this URL:

  http://www.cisco.com/packet

- *iQ Magazine* is the quarterly publication from Cisco Systems designed to help growing companies learn how they can use technology to increase revenue, streamline their business, and expand services. The publication identifies the challenges facing these companies and the technologies to help solve them, using real-world case studies and business strategies to help readers make sound technology investment decisions. You can access iQ Magazine at this URL:

  http://www.cisco.com/go/iqmagazine

- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:

  http://www.cisco.com/ipj

- World-class networking training is available from Cisco. You can view current offerings at this URL:

  http://www.cisco.com/en/US/learning/index.html

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